

SEQUENCE LISTING affer, Arthur Levin, Ilan Petreikov, Marina Bar, Moshe <120> Controlling Starch Synthesis <130> U-013220-5 <140> US 09/744,085 <141> 2001-03-26 <150> PCT/IL99/00396 <151> 1999-07-19 <150> IL 125425 <151> 1998-07-20 <160> 10 <170> PatentIn Ver. 2.1 <210> 1 <211> 23 <212> DNA <213> Lycopersicon hirsutum <400> 1 gttcatttgg ggagagtgag cac 23 <210> 2 <211> 23 <212> DNA <213> Lycopersicon hirsutum <400> 2 23 gggcagcaga attgtadtgt gtc <210> 3 <211> 22 <212> DNA <213> Lycopersicon hirsutum <400> 3 ctattggtgg/ttgttaccgg gt 22

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	Asn Gly Glu Lys Glu Ile Phe Gly Glu Lys Met Arg Gly Ser Leu Asn	
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	220 221 010 200 211 221 020 110 100 221 110 222 211	1 4 4
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	35 40 45	

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aag gag aag aag att aaa cot ggg gtt get tac tot gtg atc act act Lys Glu Lys Lys Ile Lys Pro Gly Val Ala Tyr Ser Val Ile Thr Thr 50 50 50 55 50 63 Val Ala Tyr Ser Val Ile Thr Thr 65 50 63 Val Ala Tyr Ser Val Ile Thr Thr 65 50 63 Val Ash Ash Met Pro Arg Leu Glu Arg 65 70 70 70 70 70 80 70 80 70 80 70 80 70 80 70 80 70 80 70 80 70 80 80 80 80 80 80 80 80 80 80 80 80 80				•						,								
Solu Lys Lys Ile Lys Pro Gly Val Ala Tyr Ser Val Ile Thr Thr 50 gaa aat gac aca gag act gtg ttc gta gat atg cca cgt ctt gag aga Glu Aan Aap Thr Glu Thr Val Phe Val Aap Met Pro Arg Leu Glu Arg 65 cgc cgg gca aat ccc aag gat gtg gct gca gtc ata tta gga gga ggc Arg Arg Ala Aan Pro Lys Aap Val Ala Ala Val Ile Leu Gly Gly Gly 85 gaa ggg acc aag tta ttc cca ctt aca agt aga act gca acc cct gct Glu Gly Thr Lys Leu Phe Pro Leu Thr Ser Arg Thr Ala Thr Pro Ala 100 gtt ccg gtt gga gga tgc tac agg ctc ata gac acc cct gct 110 gtt ccg gtt gga gga tgc tac agg ctc ata gac acc ccg atg agc aac Val Pro Val Gly Gly Cys Tyr Arg Leu Ile Aap Ile Pro Met Ser Aan 115 tgt atc aac agt gct att aac aag att ttt gtg ctg aca cag tac aat 24 Cys Ile Aan Ser Ala Ile Aan Lys Ile Phe Val Leu Thr Gln Tyr Aan 130 tct gt gcc ctg aat cgt cac att gct cga acg tat ttt ggc aat ggt Ser Ala Ala Leu Aan Arg His Ile Ala Arg Thr Tyr Phe Gly Aan Gly 145 gtg agc ttt gga gat gga ttt gtc gag gta cta gct cac ct gac acc Val Ser Phe Gly Aap Gly Phe Val Glu Val Leu Ala Ala Thr Gln Thr 165 gtg agc ttt gga gat gga ttt gtc gag gta cta gct act cag acca Val Ser Phe Gly Aap Gly Phe Val Glu Val Leu Ala Ala Thr Gln Thr 165 cct ggg gaa gca gag aaa aaa aac tgg ttt caa gga aca aca gaa acca Val Ser Phe Ile Trp Val Phe Gln Val Leu Ala Ala Thr Gln Thr 165 cct ggg gaa gca gga aaa aaa aca tgg ttt caa gga aca aca gaa act att gac Arg Lys Phe Ile Trp Val Phe Glu Aap Ala Lys Aan Ile Glu 195 aaa atc ctt gta tta tct cgg gat cat ctt tat agg acc gat tat atg Arg Lys Phe Ile Trp Val Phe Glu Aap Ala Lys Aan Ile Glu 205 aat atc ctt gta tta tct cgg gat cat ctt tat agg atg att at atg Glu Leu Val Clu Nan His Ile Aap Arg Aan Ala Aap Tle Thr Leu Ser 210 gag ttg gtc ag aac cat att gac aga aat gct gat ttt gg dac aga cys Ala Pro Ala Glu Asp Ser Arg Ala Ser Asp Phe Gly Leu Val Lys 245 att gac agc aga gga agc aga ct gat cta gt ttt gg gaa aac caa acca acc	•				,					•								
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Glu Gly Thr Lys Leu Phe Pro Leu Thr Ser Arg Thr Ala Thr Pro Ala 100 gtt ccg gtt gga gga tgc tac agg ctc ata gac atc ccg atg agc aac val pro Val Gly Cys Tyr Arg Leu Ile Asp Ile Pro Met Ser Asn 115 tgt atc aac agt gct att aac aag att ttt gtg ctg aca cag tac aat 432 Cys Ile Asn Ser Ala Ile Asn Lys Ile Phe Val Leu Thr Gln Tyr Asn 130 tct gct gcc ctg aat cgt cac att gct cga acg tat ttt ggc aat ggt Ser Ala Ala Leu Asn Arg His Ile Ala Arg Thr Tyr Phe Gly Asn Gly 155 gtg agc ttt gga gat gga ttt gtc gag gta cta gct gca act cag aca Val Ser Phe Gly Asp Gly Phe Val Glu Val Leu Ala Ala Thr Gln Thr 175 cct ggg gaa gca gca aga aaa aaa tgg ttt caa gga aca gca gat gct gtc Ser Oly Ala Gly Lys Lys Trp Phe Gln Gly Thr Ala Asp Ala Val 180 aga aaa ttt ata tgg gtt ttt gag gac gct aag aca aca aag aat att gac Arg Lys Phe Ile Trp Val Phe Glu Asp Ala Lys Asn Lys Asn Ile Glu 195 aat atc ctt gta tta tct ggg gat cat ctt tat agg atg gat gat gat gct gtc 200 aat atc ctt gta tta tct ggg gat cat ctt tat agg atg gat gat gat gat gat gat g				-		Pro					Ala					Gly		288
Val Pro Val Gly Gly Cys Tyr Arg Leu Ile Asp Ile Pro Met Ser Asn 115 tgt acc aac agt gct att aac aag att ttt gtg ctg aca cag tac aat 432 Cys Ile Asn Ser Ala Ile Asn Lys Ile Phe Val Leu Thr Gln Tyr Asn 130 tct gct gcc ctg aat cgt cac att gct cga acg tat ttt ggc aat ggt 480 Ser Ala Ala Leu Asn Arg His Ile Ala Arg Thr Tyr Phe Gly Asn Gly 150 gtg agc ttt gga gat gga ttt gtc gag gta cta gct gca act cag aca Val Ser Phe Gly Asp Gly Phe Val Glu Val Leu Ala Ala Thr Gln Thr 175 cct ggg gaa gca gga aaa aaa tgg ttt caa gga aca gca gat gct gtc Pro Gly Glu Ala Gly Lys Lys Trp Phe Gln Gly Thr Ala Asp Ala Val 180 aga aaa ttt ata tgg gtt ttt gag gac gct aag aca aag aat att gaa Arg Lys Phe Ile Trp Val Phe Glu Asp Ala Lys Asn Ile Glu 200 aat atc ctt gta tta tct ggg gat cat ctt tat agg att gat tat atg Asn Ile Leu Val Leu Ser Gly Asp His Leu Tyr Arg Met Asp Tyr Met 210 gag ttg gtg cag aac cat att gac aga aat gct gat att act ctt ca 230 tgt gca cca gct gag gac agc cga gca tca gat ttt ggg ctg gtc 235 att gac aca ga agc ag ag ag gt cta gt cat cta gat ttt ggg ctg gtc 366 Cys Ala Pro Ala Glu Asp Ser Arg Ala Ser Asp Phe Gly Leu Val Lys 245 att gac agc aga agc ag ag att ca 361 366 367 368 368 369 360					Lys					Thr					Thr			336
Cys Ile Asn Ser Ala Ile Asn Lys Ile Phe Val Leu Thr Gln Tyr Asn 135		_	_	Val			_		Arg					Pro				384
Ser Ala Ala Leu Asn Arg His Ile Ala Arg Thr Tyr Phe Gly Asn Gly 145 150 150 155 155 160 160 160 160 155 160		_	Ile		_	_		Asn	_				Leu					432
Val Ser Phe Gly Asp Gly Phe Val Glu Val Leu Ala Ala Thr Gln Thr 165 cct ggg gaa gca gga aaa aaa tag tgg ttt caa gga aca gca gat gct gtc Pro Gly Glu Ala Gly Lys Lys Trp Phe Gln Gly Thr Ala Asp Ala Val 180 aga aaa ttt ata tgg gtt ttt gag gac gct aag aac aag aat att gaa Arg Lys Phe Ile Trp Val Phe Glu Asp Ala Lys Asn Lys Asn Ile Glu 195 aat atc ctt gta tta tct ggg gat cat ctt tat agg atg gat tat atg 205 aat atc ctt gta tta tct ggg gat cat ctt tat agg atg gat tat atg 205 aat atc ggg gat cat ctt tat agg atg gat tat atg 206 aat atc ctt gta tta tct ggg gat cat ctt tat agg atg gat tat atg 207 aat atc ctt gta Ile Ser Gly Asp His Leu Tyr Arg Met Asp Tyr Met 210 gag ttg gtg cag aac cat att gac aga aat gct gat att act ctt tca Glu Leu Val Gln Asn His Ile Asp Arg Asn Ala Asp Ile Thr Leu Ser 225 tgt gca cca gct gag gac agc cga gca tca gat ttt ggg ctg gtc aag 768 Cys Ala Pro Ala Glu Asp Ser Arg Ala Ser Asp Phe Gly Leu Val Lys 245 att gac agc aga aga ggc aga gtt gtc cag ttt gct gaa aaa cca aaa ggt 816 Itt gag ctt aaa gca atg caa gta gat act act ctt gtt gga tta tct 864 864		Ser					Arg					Thr					Gly	480
Pro Gly Glu Ala Gly Lys Lys Trp Phe Gln Gly Thr Ala Asp Ala Val 180						Asp					Val					Gln		528
Arg Lys Phe Ile Trp Val Phe Glu Asp Ala Lys Asn Lys Asn Ile Glu 205 aat atc ctt gta tta tct ggg gat cat ctt tat agg atg gat tat atg 672 Asn Ile Leu Val Leu Ser Gly Asp His Leu Tyr Arg Met Asp Tyr Met 210 gag ttg gtg cag aac cat att gac aga aat gct gat att act ctt tca 720 Glu Leu Val Gln Asn His Ile Asp Arg Asn Ala Asp Ile Thr Leu Ser 230 tgt gca cca gct gag gac agc cga gca tca gat ttt ggg ctg gtc aag 768 Cys Ala Pro Ala Glu Asp Ser Arg Ala Ser Asp Phe Gly Leu Val Lys 245 att gac agc aga ggc aga gtt gtc cag ttt gct gaa aaa cca aaa ggt 816 Ile Asp Ser Arg Gly Arg Val Val Gln Phe Ala Glu Lys Pro Lys Gly 270 ttt gag ctt aaa gca atg caa gta gat act act ctt gtt gga tta tct 864		cct Pro	ggg Gly	gaa Glu	Ala	gga Gly	aaa Lys	aaa Lys	tgg Trp	Phe	caa Gln	gga Gly	aca Thr	gca Ala	Asp	gct Ala	gtc Val	576
Asn Ile Leu Val Leu Ser Gly Asp His Leu Tyr Arg Met Asp Tyr Met 210				Phe					Glu					Lys				624
Glu Leu Val Gln Asn His Ile Asp Arg Asn Ala Asp Ile Thr Leu Ser 225 230 235 240 tgt gca cca gct gag gac agc cga gca tca gat ttt ggg ctg gtc aag 768 Cys Ala Pro Ala Glu Asp Ser Arg Ala Ser Asp Phe Gly Leu Val Lys 245 250 255 att gac agc aga ggc aga gtt gtc cag ttt gct gaa aaa cca aaa ggt 816 Ile Asp Ser Arg Gly Arg Val Val Gln Phe Ala Glu Lys Pro Lys Gly 260 265 270 ttt gag ctt aaa gca atg caa gta gat act act ctt gtt gga tta tct 864			Ile					Gly					Arg					[.] 672
Cys Ala Pro Ala Glu Asp Ser Arg Ala Ser Asp Phe Gly Leu Val Lys 245 250 255 att gac agc aga ggc aga gtt gtc cag ttt gct gaa aaa cca aaa ggt Ile Asp Ser Arg Gly Arg Val Val Gln Phe Ala Glu Lys Pro Lys Gly 260 265 270 ttt gag ctt aaa gca atg caa gta gat act act ctt gtt gga tta tct 864		Glu					His					Ala					Ser	720
Ile Asp Ser Arg Gly Arg Val Val Gln Phe Ala Glu Lys Pro Lys Gly 260 265 270 ttt gag ctt aaa gca atg caa gta gat act act ctt gtt gga tta tct 864						Glu					Ser					Val		768
					Arg					Gln					Pro			816
																		864

275 280 285

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				tca Ser											1296
				gca Ala											1344
				GJA aaa											1392
				atc Ile 470											.1440
_				aaa Lys	_		_			_	_	_			1488
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Lys Glu Lys Lys Ile Lys Pro Gly Val Ala Tyr Ser Val Ile Thr Thr
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Glu Asn Asp Thr Glu Thr Val Phe Val Asp Met Pro Arg Leu Glu Arg 65 70 75 80

Arg Arg Ala Asn Pro Lys Asp Val Ala Ala Val Ile Leu Gly Gly Gly 85 90 95

Glu Gly Thr Lys Leu Phe Pro Leu Thr Ser Arg Thr Ala Thr Pro Ala 100 105 110

Val Pro Val Gly Gly Cys Tyr Arg Leu Ile Asp Ile Pro Met Ser Asn 115 120 125

Cys Ile Asn Ser Ala Ile Asn Lys Ile Phe Val Leu Thr Gln Tyr Asn 130 135 140

Ser Ala Ala Leu Asn Arg His Ile Ala Arg Thr Tyr Phe Gly Asn Gly 145 150 155 160

Val Ser Phe Gly Asp Gly Phe Val Glu Val Leu Ala Ala Thr Gln Thr 165 170 175

Pro Gly Glu Ala Gly Lys Lys Trp Phe Gln Gly Thr Ala Asp Ala Val

Arg Lys Phe Ile Trp Val Phe Glu Asp Ala Lys Asn Lys Asn Ile Glu
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Cys Ala Pro Ala Glu Asp Ser Arg Ala Ser Asp Phe Gly Leu Val Lys 245 250 255

Ile Asp Ser Arg Gly Arg Val Val Gln Phe Ala Glu Lys Pro Lys Gly 260 265 270

Phe Glu Leu Lys Ala Met Gln Val Asp Thr Thr Leu Val Gly Leu Ser 275 280 285

Pro Gln Asp Ala Lys Lys Ser Pro Tyr Ile Ala Ser Met Gly Val Tyr 290 295 300

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Thr Ser Asn Asp Phe Gly Ser Glu Ile Ile Pro Ala Ala Ile Asp Asp 325 330 335

Tyr Asn Val Gln Ala Tyr Ile Phe Lys Asp Tyr Trp Glu Asp Ile Gly 340 345 350

Thr Ile Lys Ser Phe Tyr Asn Ala Ser Leu Ala Leu Thr Gln Glu Phe 355 360 365

Pro Glu Phe Gln Phe Tyr Asp Pro Lys Thr Pro Phe Tyr Thr Ser Pro 370 375 380

Arg Phe Leu Pro Pro Thr Lys Ile Asp Asn Cys Lys Ile Lys Asp Ala 385 390 395 400

Ile Ile Ser His Gly Cys Phe Leu Arg Asp Cys Ser Val Glu His Ser 405 410 415

Ile Val Gly Glu Arg Ser Arg Leu Asp Cys Gly Val Glu Leu Lys Asp 420 425 430

Thr Phe Met Met Gly Ala Asp Tyr Tyr Gln Thr Glu Ser Glu Ile Ala 435 440 445

Ser Leu Leu Ala Glu Gly Lys Val Pro Ile Gly Ile Gly Glu Asn Thr 450 455 460

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Val Ser Ile Ile Asn Lys Asp Gly Val Gln Glu Ala Asp Arg Pro Glu
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